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Agenda Item: File ID 17-1229
Date: 8/31/17

FRESNO CITY COUNCIL

City Of Fresno

Supplemental Information Packet

Agenda Related Item(s) – ID17-1229

Contents of Supplement: Item 10:05 A.M. – Power Point Presentation for the Workshop regarding the City of Fresno Water Supply Investment Opportunities

Item(s)

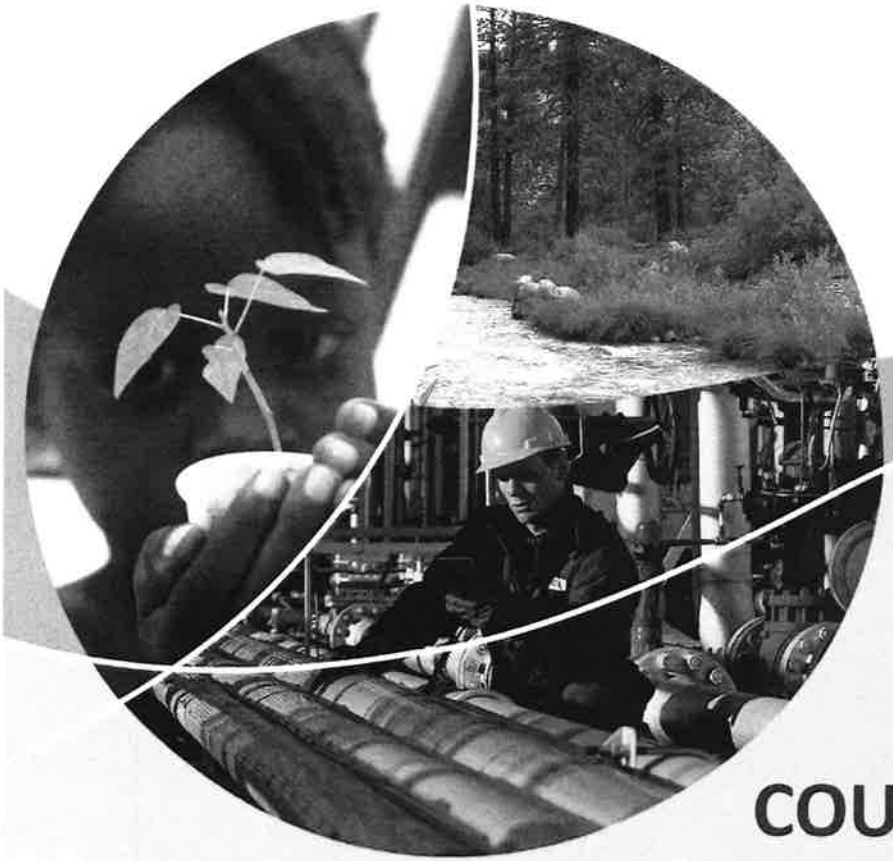
Power Point Presentation

Supplemental Information:

Any agenda related public documents received and distributed to a majority of the City of Fresno City Council after the Agenda Packet is printed are included in Supplemental Packets. Supplemental Packets are produced as needed. The Supplemental Packet is available for public inspection in the City Clerk's Office, 2600 Fresno Street, during normal business hours (main location pursuant to the Brown Act, G.C. 54957.5(2). In addition, Supplemental Packets are available for public review at the Oversight Board meeting in Meeting Room 2165A, 2600 Fresno Street. Supplemental Packets are also available on-line on the City Clerk's website.

Americans with Disabilities Act (ADA):

The meeting room is accessible to the physically disabled, and the services of a translator can be made available. Requests for additional accommodations for the disabled, sign language interpreters, assistive listening devices, or translators should be made at least 48 hours prior to the meeting. Please call City Clerk's Office at 621-7650. Please keep the doorways, aisles and wheelchair seating areas open and accessible.



COUNCIL WORKSHOP

Water Supply Investment Opportunities

Temperance Flat Reservoir

CalWaterFix – Twin Tunnels

August 31, 2017

Workshop Outline

- Policy Considerations for Water Supply Investment
- Temperance Flat Reservoir
- CalWaterFix – Twin Tunnels
- Questions

Policy Considerations for Water Supply Investment

Future Water Supply Demands

- The City needs to develop additional long-term, permanent water supply resources to meet future demands
- Sustainable Groundwater Management Act requires utilization of surface water to increase groundwater levels in North Kings Sub-Basin
- Current Water Supply Entitlements
  - FID Conveyance Agreement
    - 29-percent of FIDs Kings River Entitlement (450,000 AF/Year) = 130,500 AF/Year
  - Friant Division of Central Valley Project (CVP)
    - Class 1 Contractor = 60,000 AF/year
  - Total Surface Water Entitlements
    - (FID Water) + (CVP Water) = 190,500 AF/Year
- Current Total Water Demands
  - 120,000 AF/Year (224 gallons per person per day)
- Current Surface Water Available for Service Area
  - (190,500 AF/Year) – (120,000 AF/Year) = + 70,500 AF/Year

Policy Considerations for Water Supply Investment

Future Water Supply Demands

- Future Population Growth Forecasts (*General Plan, 1.85% Growth Rate, 224 gpcd*)
  - Current Estimated SOI Population = 545,000 (120,000 AF/Year)
  - Forecasted 2035 SOI Population = 771,000 (193,000 AF/Year)
  - Forecasted SOI Buildout Population = 970,000 (243,000 AF/Year)
- Long-Term Water Supply Gap at Buildout

  - 243,000 AF/Year (Total System Demand)

  - 25,000 AF/Year (Supplement Recharge to Increase Local GW Levels)

  + 190,500 AF/Year (Current Surface Water Supply Contracts)

  - 77,500 AF/Year – Water Supply Deficit at Buildout

Policy Considerations for Water Supply Investment

Future Water Supply Demands

- Current Estimated Water Supply Deficit at Buildout = - 77,500 AF/Year
- Additional Considerations for Population Growth Rate (~current = 1.85%)
  - Impact of High-Speed Rail Connection to San Jose
  - Impact of SGMA Driving Growth to Cities with Access, Rights, and Entitlements to Surface Water
  - Impact of Intensified Economic Development Efforts

With these factors, the City's Water Supply Deficit may approach 100,000 AF/Year

Policy Considerations for Water Supply Investment

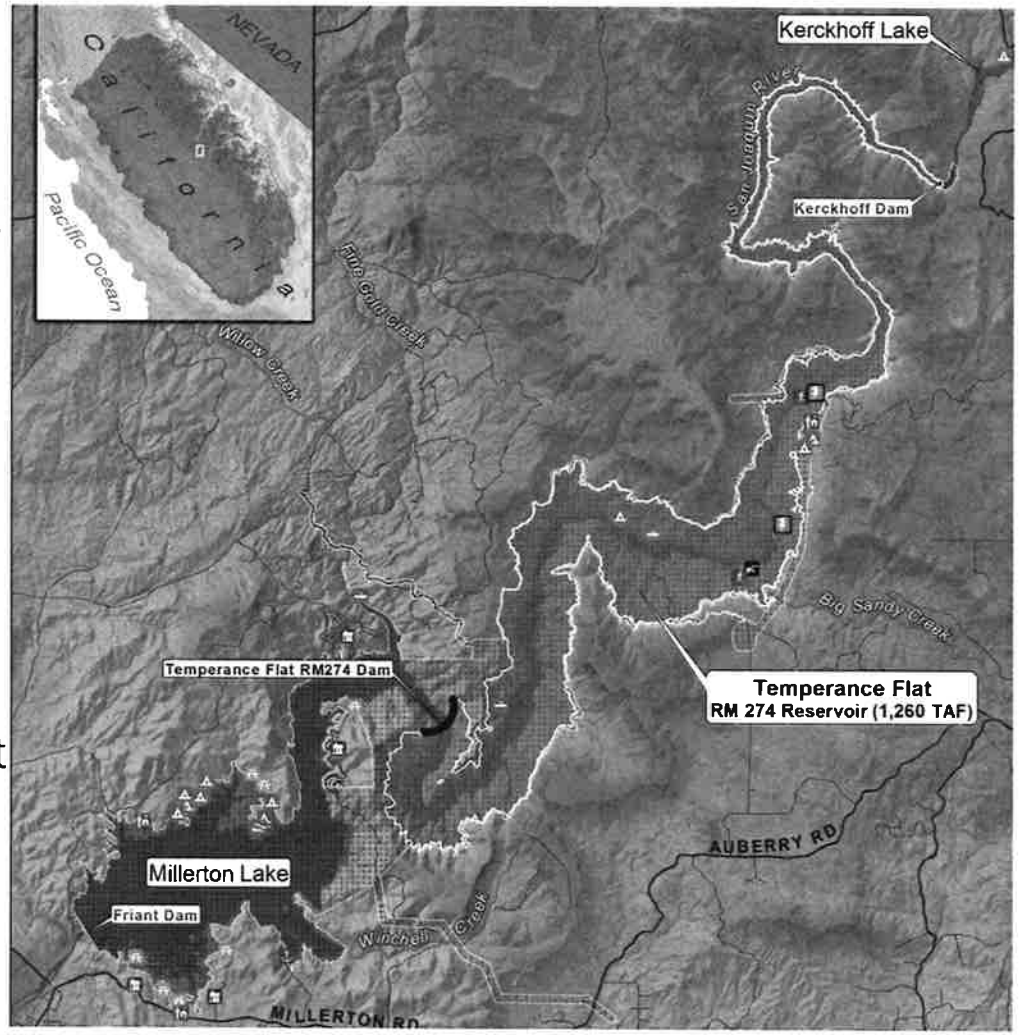
Water Supply Investment Options

- Temperance Flat Reservoir
- CalWaterFix – Twin Tunnels
- Big Dry Creek Reservoir – convert from flood control facility to water supply storage facility
- Direct Potable Reuse – Toilet-to-Tap
- Permanent Purchase of Surface Water Supply Rights from Other Water Agencies
- Other – always, and continuously, considering other options

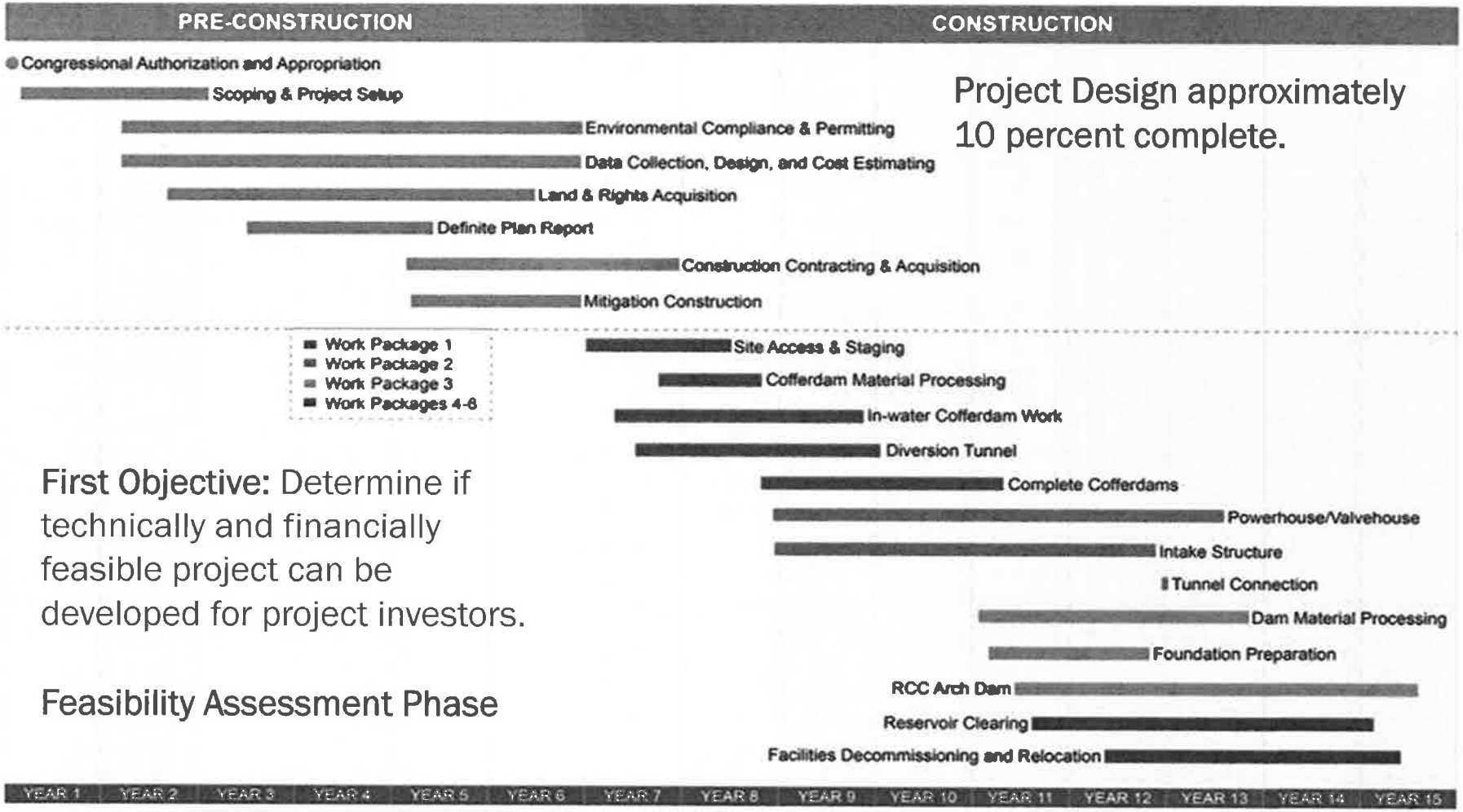
Temperance Flat Reservoir

Temperance Flat Reservoir
Basic Information

- Proposition 1 Application Submitted by SJVWIA 8/14/2017 – Planning Level Operations Plan
- Roller-Compacted Concrete Dam at River Mile 274 (665 ft tall)
- 1.26 million acre feet (MAF) storage
- ~100,000 AF new water supply yield
- $2.7 Billion (2015 Dollars), total estimated capital cost
- $1.3 Billion (2015 Dollars), maximum Proposition 1 Investment eligibility
- 2024 Construction Start Year
- 2033 Construction End Year



Temperance Flat Reservoir
Project Delivery Schedule (15 Years)



Project Design approximately 10 percent complete.

First Objective: Determine if technically and financially feasible project can be developed for project investors.

Feasibility Assessment Phase

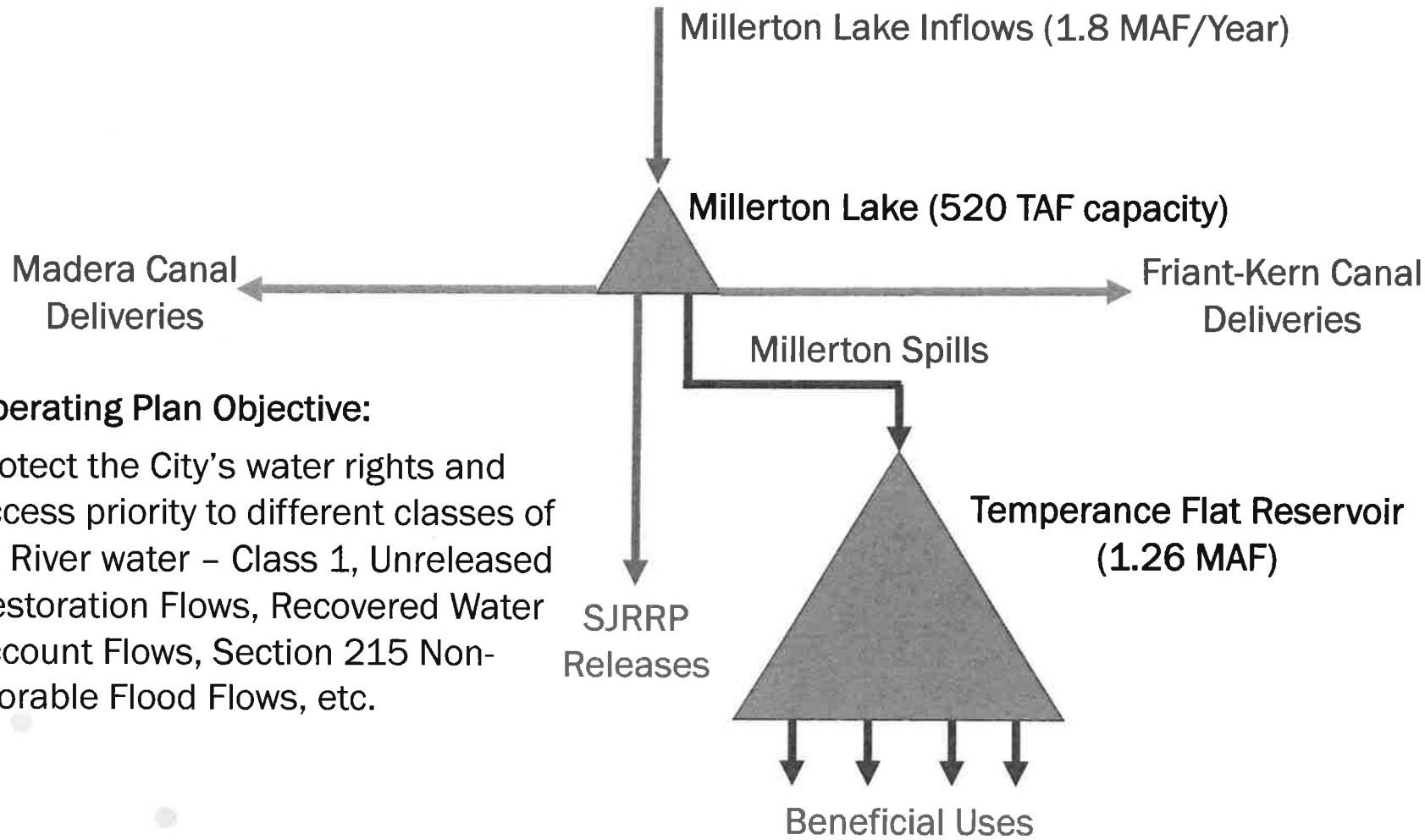
City of FRESNO
DEPARTMENT OF PUBLIC UTILITIES

Temperance Flat Reservoir

Feasibility Assessment Phase (Project Scoping and Setup)

- Define types of benefits resulting from new reservoir (*wildlife habitat, water supply, recreational, water quality, flood control, etc.)*
- Define cost values or ratios to assign to benefits (*not all benefits have equal value*)
- Evaluate alternative reservoir operational and management strategies to optimize benefits (*cooperative effort with USBR and other agencies*)
- Simulate reservoir operations based on individual investor supply and demand profiles
- Identify potential operating plan risks (*i.e. law of unintended consequences*), and mitigation measures and costs to address identified risks
- Initial participation from local public agencies for Feasibility Assessment Phase will be voluntary, and the funds invested by local participants will be credited toward the buy-in costs for legal-entity created for TFR implementation.

Temperance Flat Reservoir
Conceptual Operating Plan

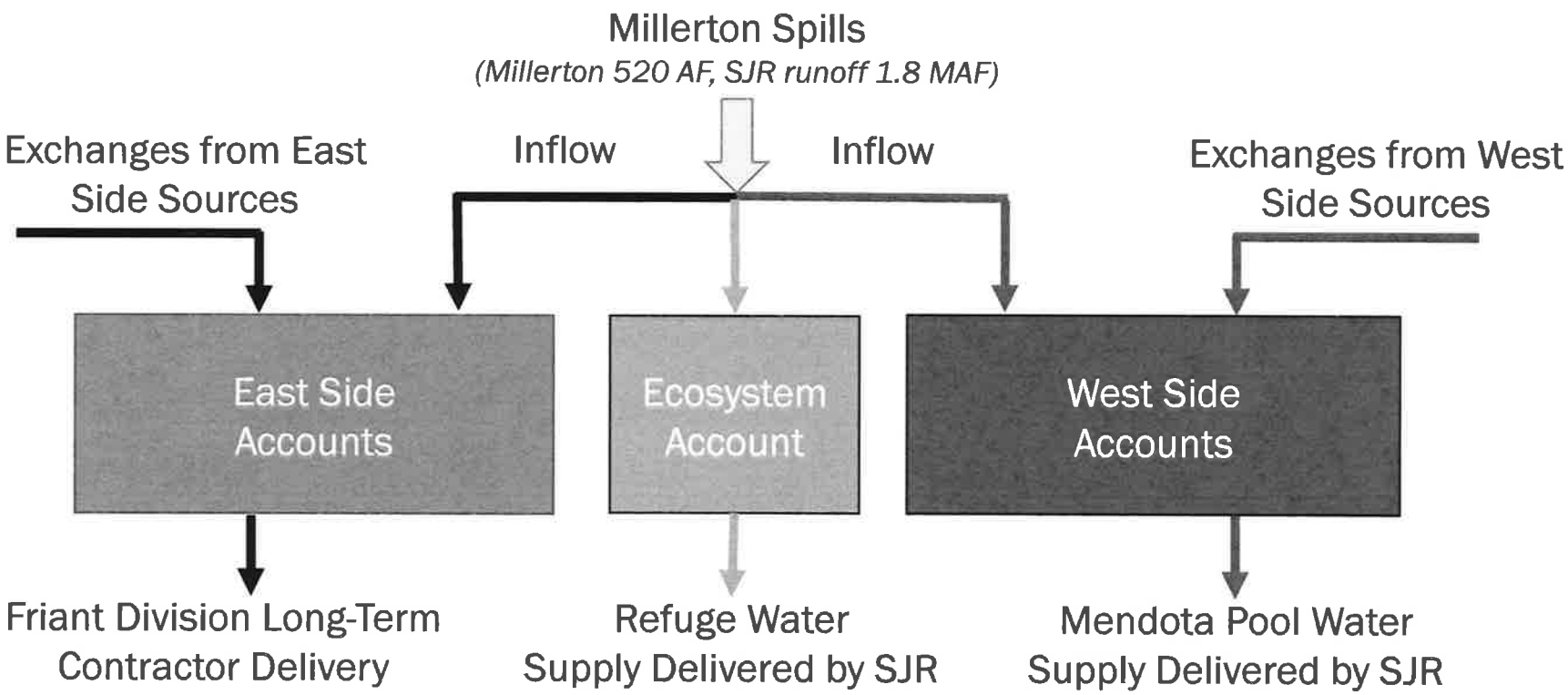


Operating Plan Objective:

Protect the City's water rights and access priority to different classes of SJ River water – Class 1, Unreleased Restoration Flows, Recovered Water Account Flows, Section 215 Non-Storable Flood Flows, etc.

Temperance Flat Reservoir

Model Construction for Feasibility Assessment Phase



Feasibility Assessment Phase Objective: Identify TFR operations and management strategy that is technically and financially feasible for local participating agencies.

Proceed to Project Delivery Phase (planning, permitting, design, financing, and construction) if technically and financially feasible operating plan identified.

Temperance Flat Reservoir
Preliminary Short-Term Path Forward Plan

- Identify partner public agencies to conduct feasibility assessment
- Prepare work plan to conduct feasibility assessment in cooperation with Bureau of Reclamation
- Prepare funding agreement to equitably cost-share feasibility assessment costs with volunteer public agencies
- Conduct project feasibility assessment ($2 million over 24 months)
  - Assess TFR Project **with** Proposition 1 Funding (funding available June 2018)
  - Assess TFR Project **without** Proposition 1 Funding (self-funded by local agencies)

First Go/No Go Decision Point: Can a technically and financially feasible project (Preferred Project) be developed for the participating local public agencies?

- If Preferred Project can be developed for local participating public agencies:
  - Establish a Legal-Entity to assume Project Delivery Responsibilities for TFR (planning, permitting, design, financing, and construction)
  - Proceed with preparation of CEQA documents for Preferred Project ($45 million over 48 months)
- ***Project Cost to City of Fresno Unknown Until Completion of Feasibility Assessments***

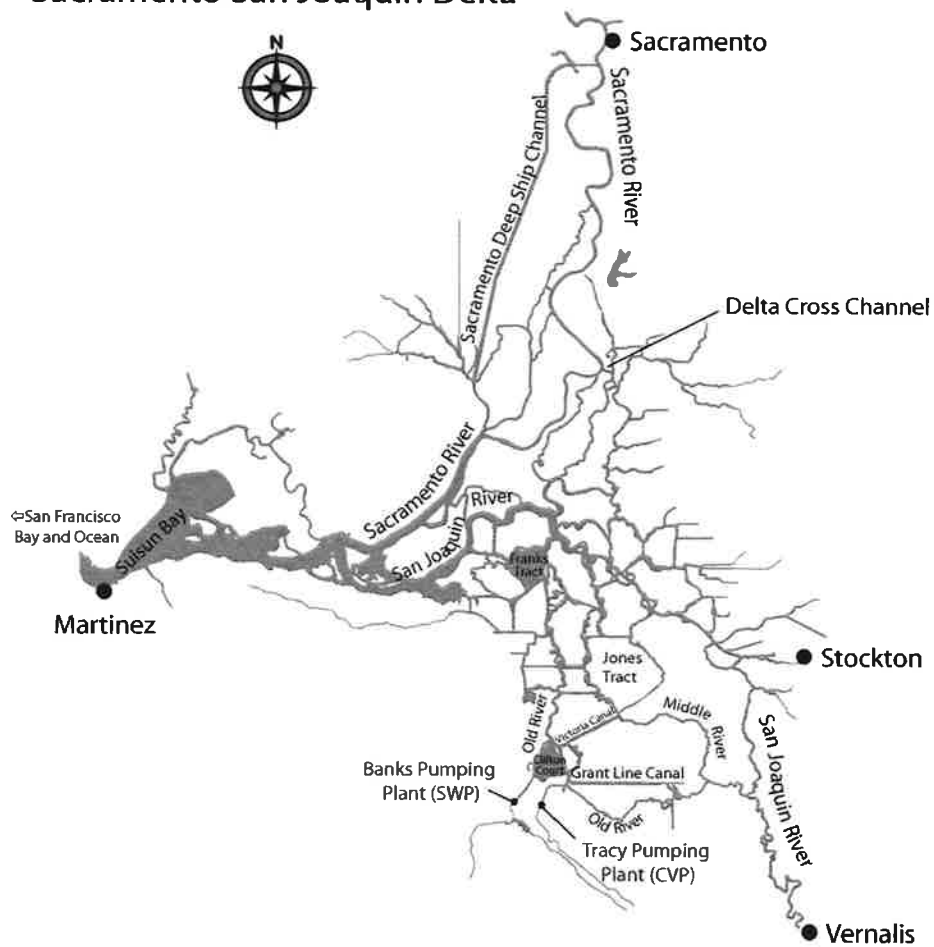
California Water Fix
Twin-Tunnels

CalWaterFix – Twin Tunnels
Project Objectives

Sacramento-San Joaquin Delta is a dynamic system – both hydraulically and environmentally

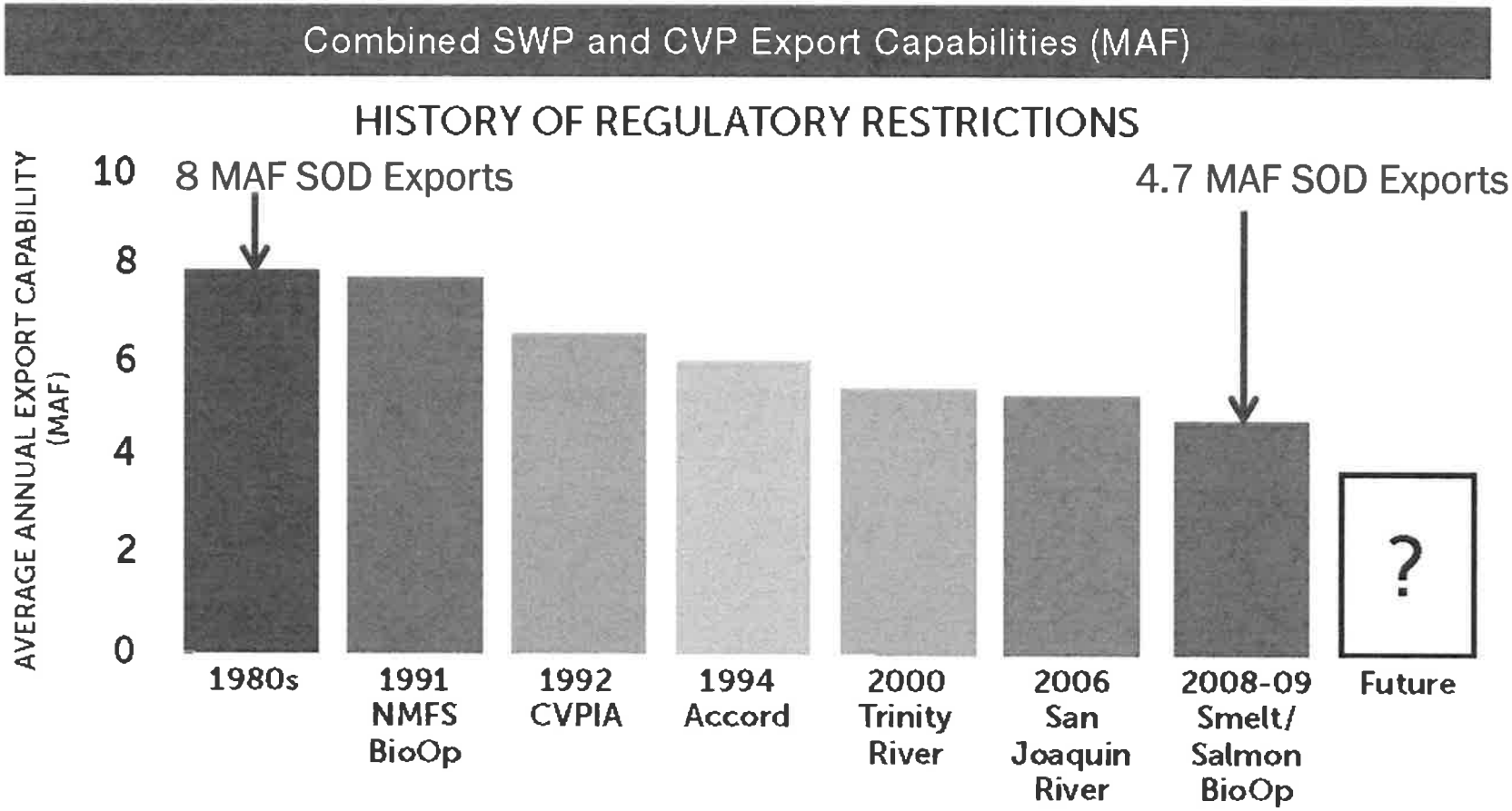
- Existing Risks for South of Delta (SOD) Exports at Existing SOD Intakes
  - Potential levee failures in Delta from seismic events
  - Salt water intrusion into Delta
  - Sea-level rise in Delta
  - Impaired water quality for SOD exports
  - Increased environmental protection measures for aquatic species
- <u>Objectives:</u> Improve Water Supply Conveyance and Water Quality for SOD Exports and Protect Delta Ecosystems

Sacramento San Joaquin Delta



CalWaterFix – Twin Tunnels

Increased Environmental Protections



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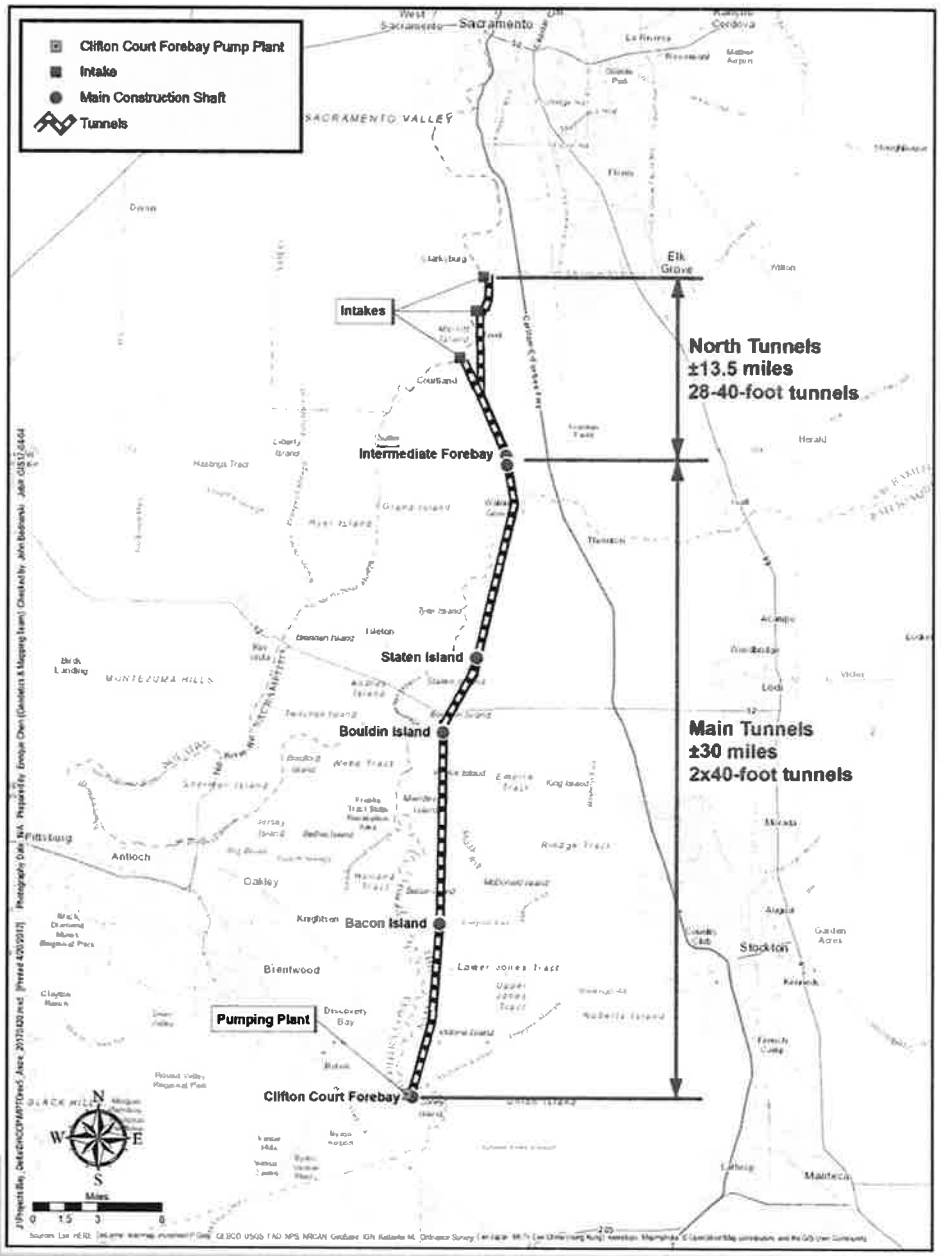
CalWaterFix – Twin Tunnels

Basic Information

- Three new North of Delta Intakes on Sacramento River
- Two Tunnel Sections
  - North Tunnels
  - Main Tunnels
- Two Forebays
  - New Intermediate Forebay
  - Clifton Court Forebay Reconfiguration
- New Pumping Station at Clifton Court Forebay
- Program Schedule
  - 12 months to staff project
  - 4 years to complete design
  - 13 years to construct project
- Total Capital Cost = $16.7 billion



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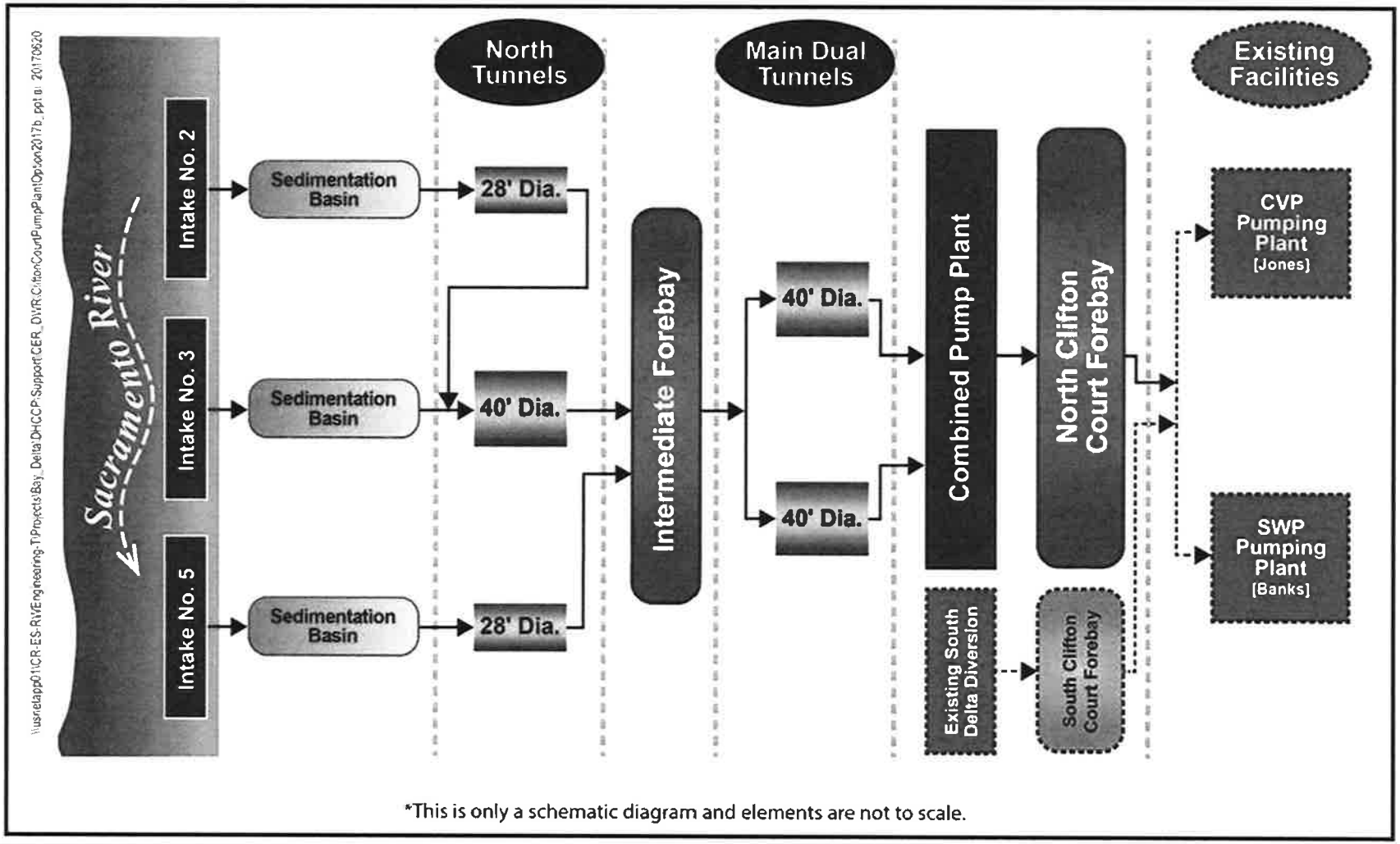
CalWaterFix – Twin Tunnels

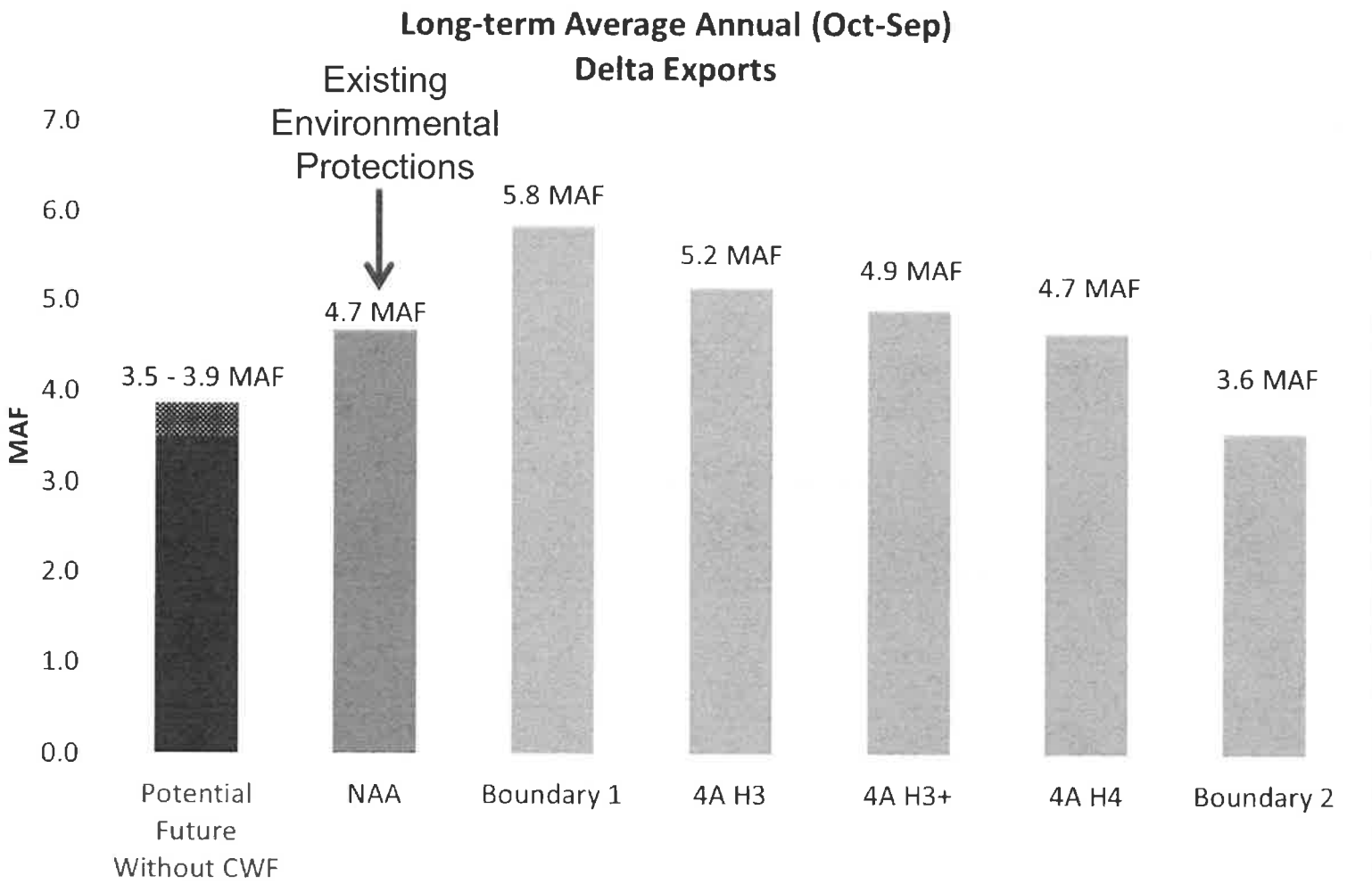
Facility Overview Schematic



*This is only a schematic diagram and elements are not to scale.

CalWaterFix – Twin Tunnels

Benefits of Project Under Different Operating Plans



CalWaterFix – Twin Tunnels

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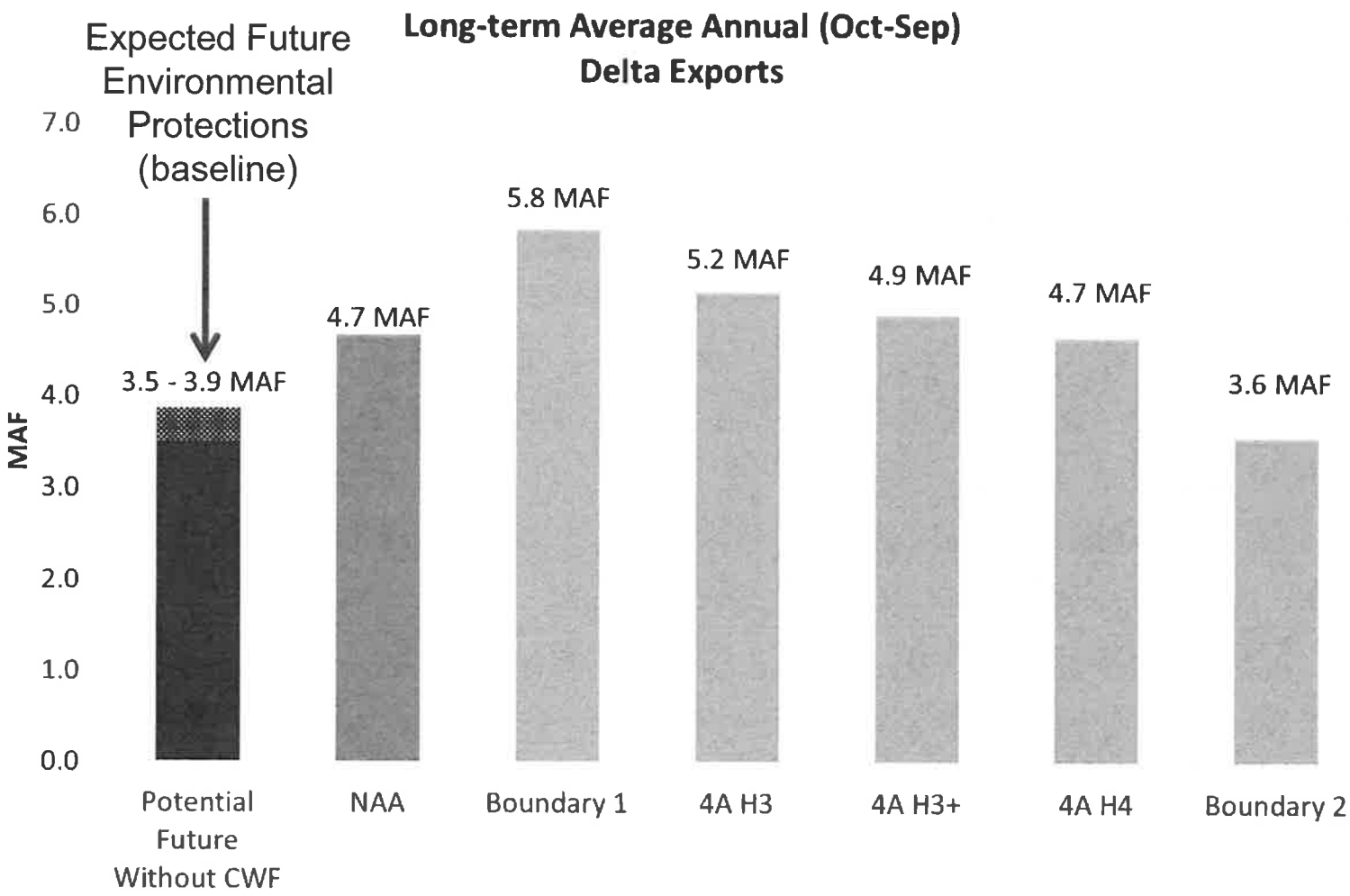

CalWaterFix – Twin Tunnels

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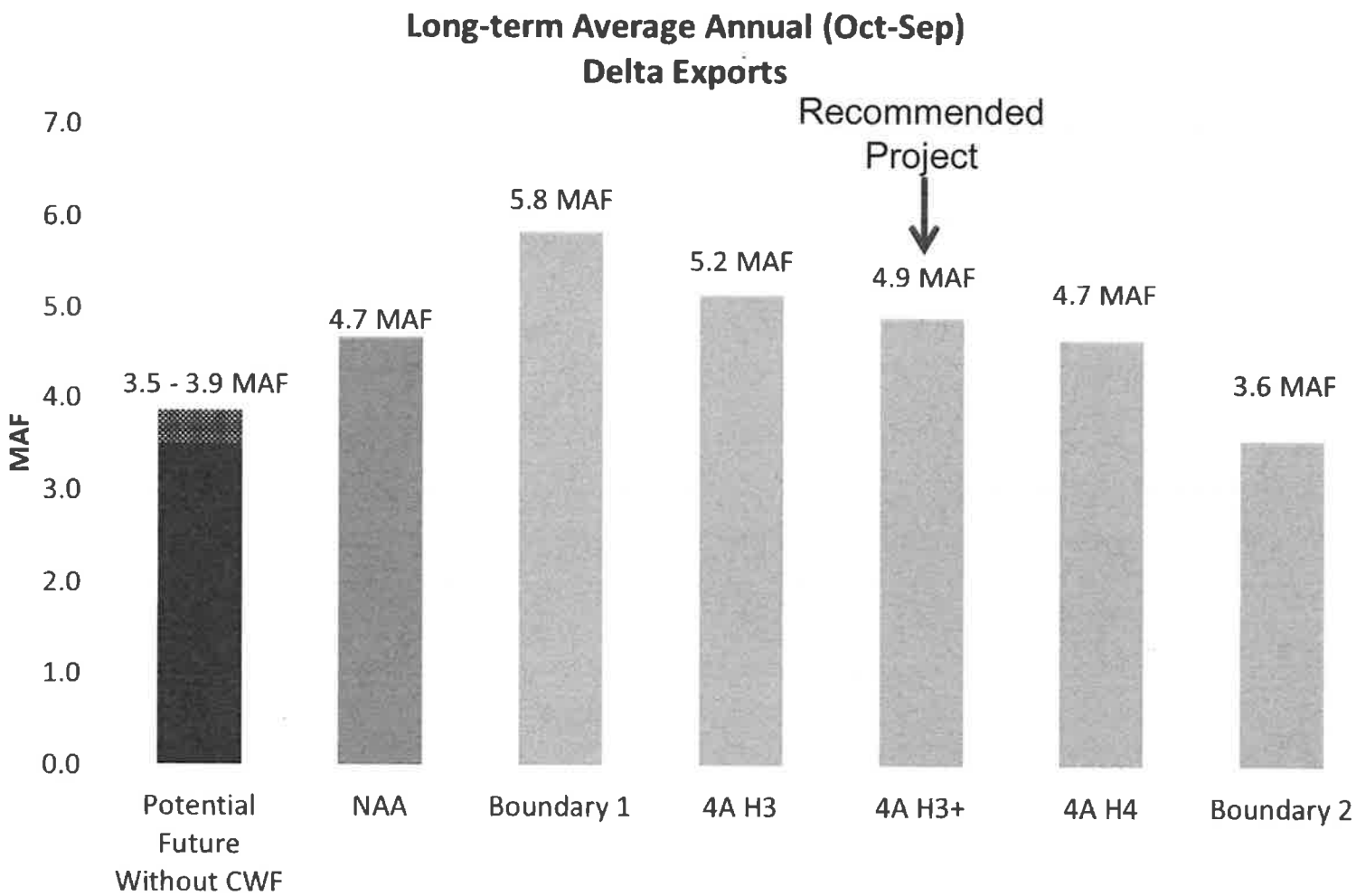
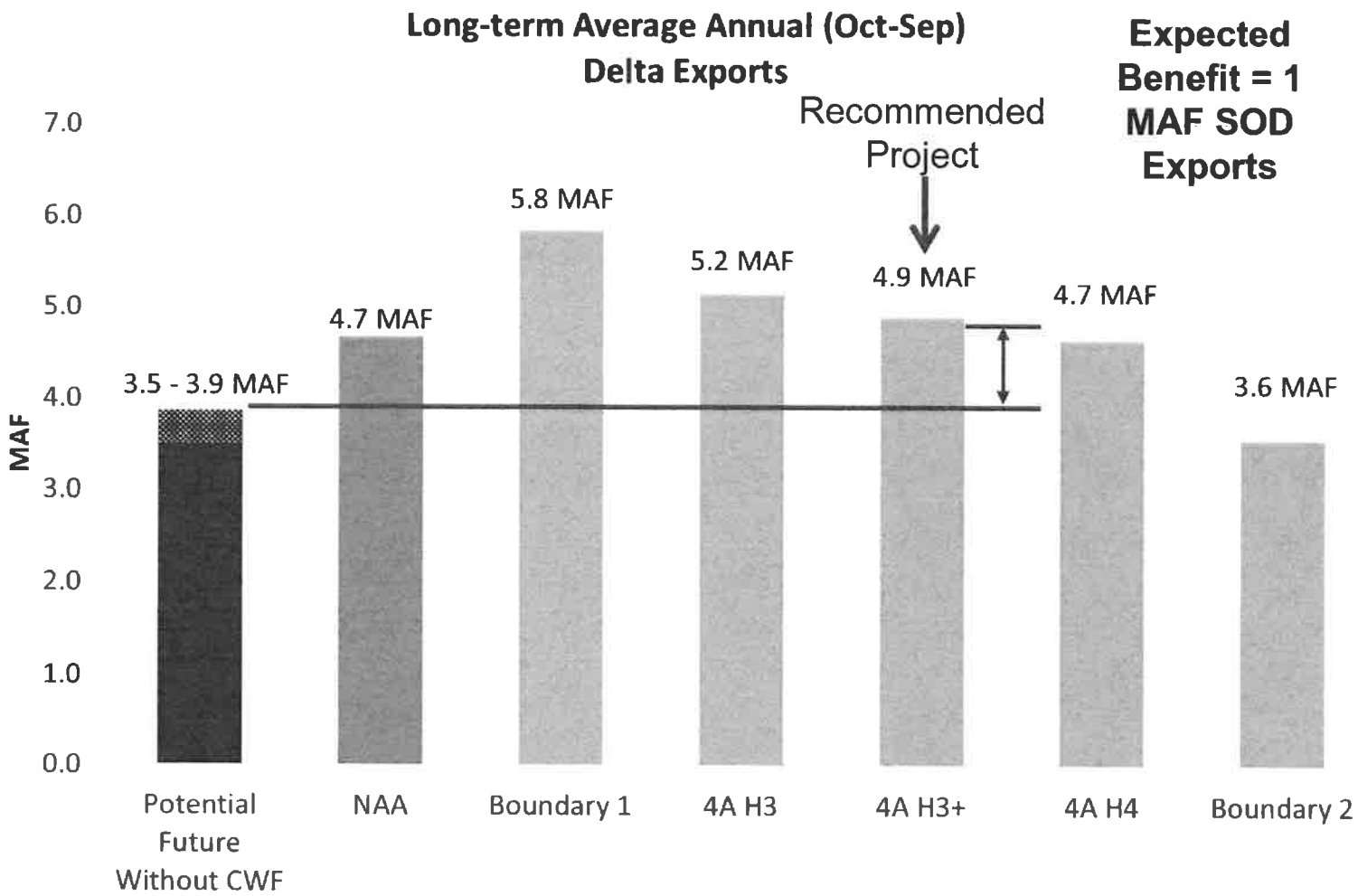


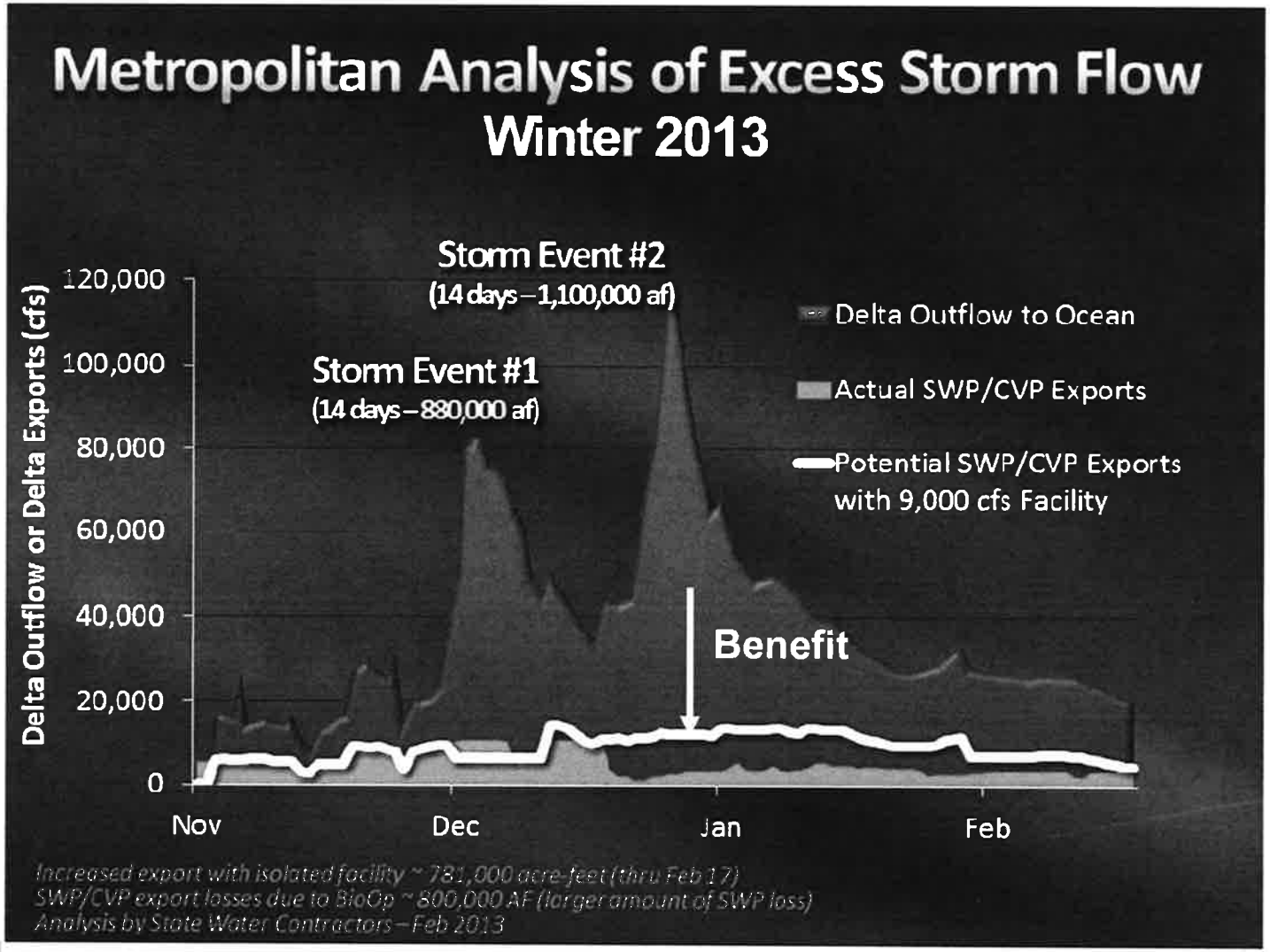
CalWaterFix – Twin Tunnels

Benefits of Project Under Different Operating Plans



CalWaterFix – Twin Tunnels

Benefits of Project Under Different Operating Plans



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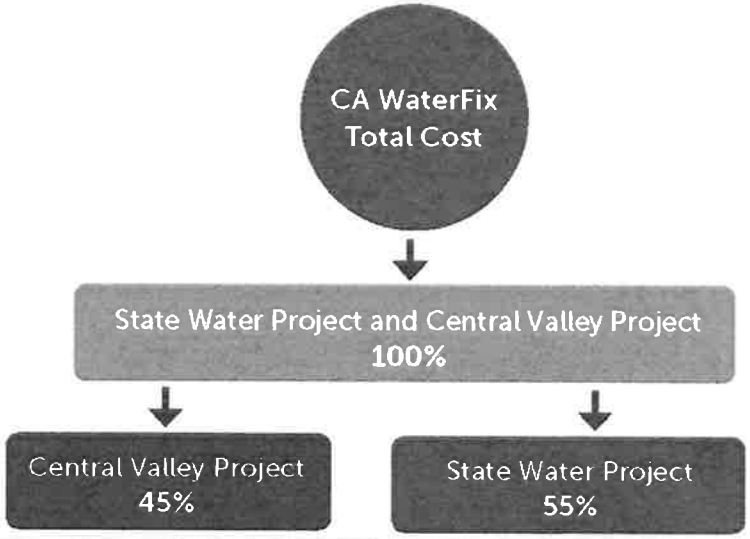
CalWaterFix – Twin Tunnels

City of Fresno Participation

- Current Financing Plan ($16.7 Billion)
  - 55% funded by State Water Project Contractors
  - 45% funded by Central Valley Project Contractors (City of Fresno)
- City could purchase portion of Twin Tunnels Capacity (portion of 1 MAF for SOD exports)
  - *Twin Tunnel capacity does not include water rights.*
- City will need to partner with agencies that possess CVP contracts for SOD transfers

CA WaterFix Cost Allocation



CAPITAL COSTS		
	2014 Dollars	2017 Dollars
Environmental Mitigation*	$ 367 M	$ 401 M
Conveyance System Cost	$ 14.9 B	$16.33 B
Overall Cost	$ 15.3 B	$ 16.7 B

City of FRESNO DEPARTMENT OF PUBLIC UTILITIES

CalWaterFix – Twin Tunnels

Preliminary Short-Term Path Forward Plan

- Potential Benefits of Twin-Tunnels to City of Fresno
  - 1 million acre feet of export capacity available to CVP and SWP contractors
  - Improved capacity, reliability and redundancy for City's water supply portfolio
  - Access to a new water supply source – Sacramento River – to compliment the City's San Joaquin River and Kings River water supplies
- Successful use of Twin Tunnels will require City to partner with other South of Delta (SOD) CVP contractors or SOD State Water Project (SWP) contractors
  - Work with other SOD CVP and SWP contractors to evaluate partnering options for mutually-beneficial use of Twin Tunnels to move CVP and SWP water SOD
- Work with Bureau of Reclamation to determine methods, policies, and procedures for allocating Sacramento River water to SOD CVP contractors through the Twin Tunnels
- ***Project cost to City of Fresno unknown until completion of additional investigations with other local, state and federal agencies are ompleted.***

Summary Water Supply Investment Opportunities

- Based on current General Plan growth projections *(1.85% / year)* and water consumption rates *(224 gpcd)*, the City will begin to experience a surface water supply deficit, relative to demand, in 2035
  - At Buildout of SOI, the surface water supply deficit could reach 77,500 AF/Year
  - If growth occurs at a rate greater than 1.85% per year, the deficit could reach 100,000 AF/Year
- New surface water supply projects require 15 to 20 years to complete
- Surface water supply options currently available for consideration
  - Temperance Flat Reservoir
  - CalWaterFix – Twin Tunnels
  - Direct Potable Reuse – Toilet to Tap
  - Big Dry Creek
  - Purchase Permanent Water Supply Rights from Other Agencies
  - Other

Summary Water Supply Investment Opportunities

- Temperance Flat Reservoir
  - Protect City's existing SJ River water rights and access priority to available water supplies
  - $4 billion project (2015 dollars); 1.26 MAF storage; ~100,000 AF/Year of new water supply; earliest date TFR ready for water supply 2035.
  - Project implementation shall be conducted by project investors
  - Conduct feasibility studies in cooperation with other agencies to develop an Operating Plan that meets the needs of project investors.
  - If mutually-agreeable Operating Plan can be developed, proceed with implementation using an investor-led legal entity.
- CalWaterFix – Twin Tunnels
  - City has no contractual access to water supply in Delta
  - $16.7 billion project (2017 dollars); 1 MAF of south of Delta transfers; earliest date CWF ready for water supply 2038.
  - City needs to work with other SOD CVP and SWP contractors to evaluate partnering options for mutually-beneficial use of Twin Tunnels to move CVP and SWP water SOD for benefit of City

Lots of work required to assess the technical, financial, and institutional feasibility of both projects for the City of Fresno – work is starting . . .

Questions